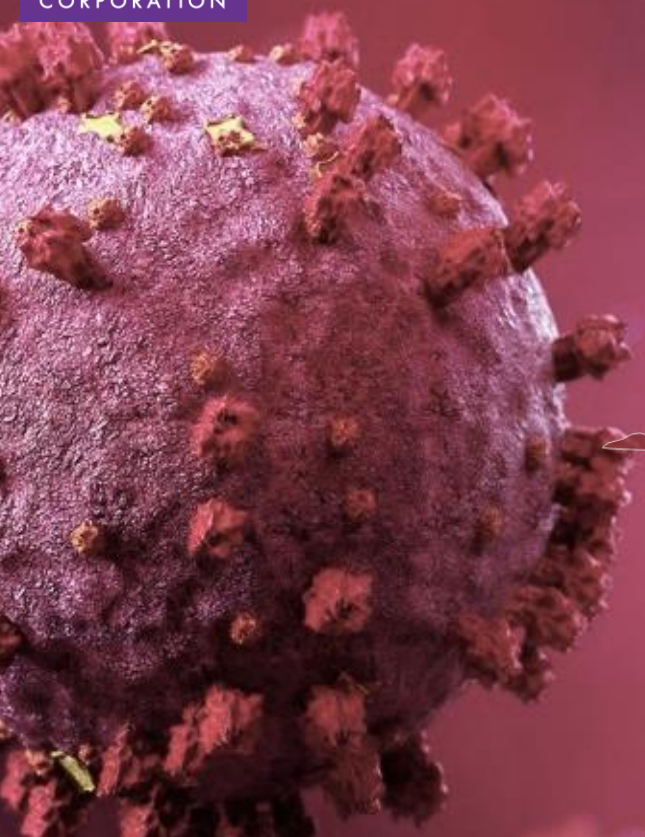

VIRGINIA

COVID-19 Update June 10th, 2021

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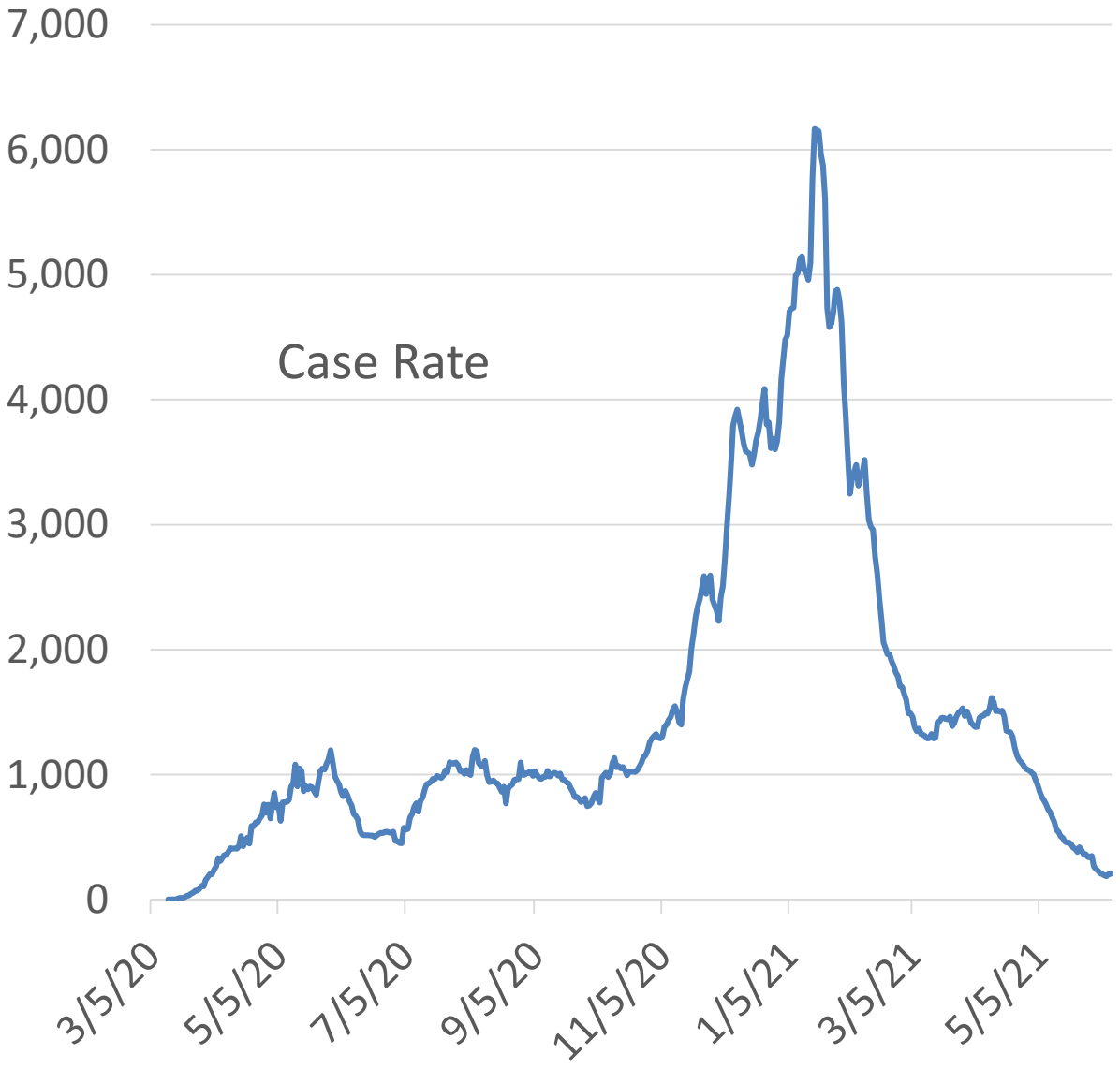
A team of RAND researchers was asked by the Commonwealth of Virginia to review available information on COVID-19 models of the Commonwealth to determine the strengths and weaknesses of each model and their relevance to decisionmaking. The information in this presentation is intended to keep policymakers abreast of the latest findings of the research team.

This research was sponsored by the Commonwealth of Virginia and conducted by the RAND Corporation. RAND is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. For more information, visit www.rand.org.

Bottom Line Up Front



Confirmed cases have declined from last week to 204 per day (-16%)

- This is 84 percent lower than the mid-March low of 2021 and 52 percent below the summer lows of 2020

COVID hospitalizations have decreased to 395 (-17%)

Vaccination is continuing to increase with at least 46 percent of the population fully vaccinated

- With the current trends, community immunity will not be reached statewide before the fall

Case rates are below the lows of 2020, and the trend is for a sustained decline

- The pandemic is not over, but many parts of Virginia are ready to enter the recovery phase, which entails activities to promote the return to normal
- However, given the continued threat of COVID variants, preparation activities for future phases should be ongoing

Cases are relatively low across the Commonwealth

CASE COUNT

Source: VDH

These data were updated June 9th and represent a seven-day average of the previous week

Yellow indicates at least 10 cases per 100,000

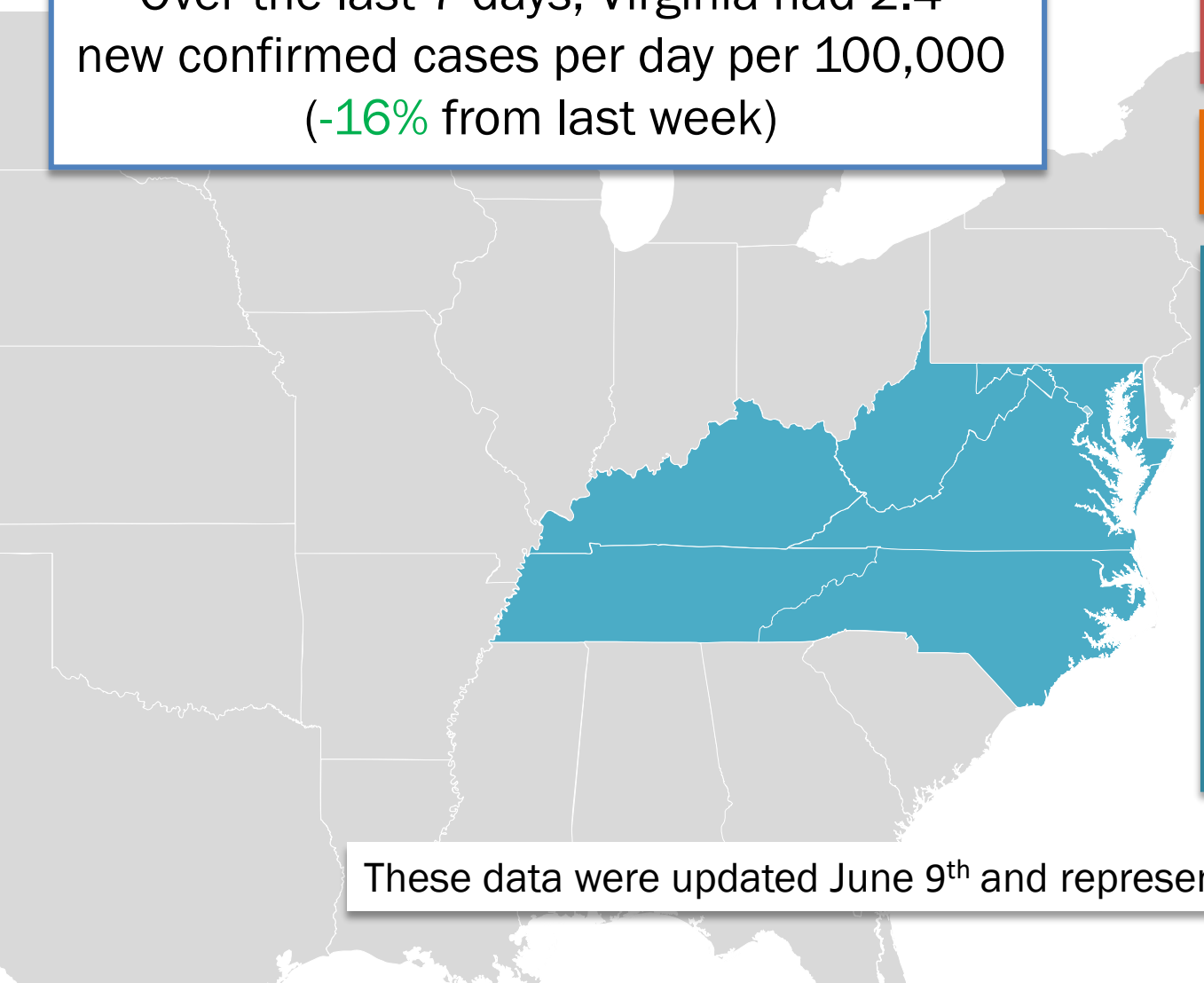
Case levels have drifted lower across the Commonwealth

- 6 percent of counties have more than 10 cases per 100,000 (141,000 Virginians live in these counties)
- 80 percent of counties have fewer than 5 cases per 100,000 (7,743,000 Virginians live in these counties)

When cases are this low, even the weekly values can be volatile

Case level trends for neighboring states were mostly down last week

Over the last 7 days, Virginia had 2.4 new confirmed cases per day per 100,000 (-16% from last week)



Very high case loads (>20):

High case loads (10-20):

Lower case loads (<10): None

- Kentucky (7.7 new cases per 100k, +15% from last week)
- West Virginia (6.2, -39%)
- North Carolina (3.7, -13%)
- District of Columbia (2.4, -40%)
- Tennessee (2.1, -43%)
- Maryland (2.1, -22%)

These data were updated June 9th and represent a seven-day average of the previous week

Variants could increase the rate of spread

The CDC has Identified five variants of concern that spread more rapidly than the baseline variant and may lead to more reinfection

- All five variants of concern have been detected in Virginia

The CDC has projections of the June 5th prevalence for HHS Region 3 (DE, DC, MD, PA, VA, and WV) based on genomic testing from May 9th to May 22nd

- B.1.1.7 (“U.K. variant”) is estimated to be 72.1 percent of cases in the region
- P.1 (“Brazilian variant”) is estimated to be 3.7 percent of cases
- B.1.351 (“South African variant”) is estimated to be 0.7 percent of cases
- B.1.427/B.1.429 (“California variants”) are estimated to be 0.2 percent taken together

Additionally, there are several variants of interest that have been detected in the region

- B.1.526/B.1.526.1 /B.1.526.2 (“New York variants”) are estimated to total 14.8 percent
- B.1.617.1-3 (”Indian variants”) are estimated to be 5.1 percent of the cases in the region

46 percent of Virginians are fully vaccinated, and an additional 10 percent are partially vaccinated

Age	0-9	10-19	20-29	30-39	40-49	50-59	60-69	70-79	80+	Total*
Fully Vaccinated	0	175,606	442,884	520,687	556,923	660,780	683,882	471,492	224,492	3,927,866
% Full	0.0%	16.0%	38.4%	44.4%	51.7%	58.7%	70.0%	76.8%	72.1%	46.0%
Partially Vaccinated	0	164,527	119,854	120,646	113,470	118,024	100,368	57,575	31,347	854,236
% with Partial	0.0%	15.0%	10.4%	10.3%	10.5%	10.5%	10.3%	9.4%	10.1%	10.0%
Confirmed Cases	32,491	73,990	130,109	109,806	98,556	96,439	65,577	35,146	24,944	677,013
% Confirmed Cases	3.2%	6.7%	11.3%	9.4%	9.2%	8.6%	6.7%	5.7%	8.0%	7.9%

*The total includes those without reported age information

Source: VDH, June 9th

Vaccinations are slowing

- Over the last seven days, Virginia has averaged 24,882 doses per day (-25% from last week and -68% from April)
- At this pace, the vaccination levels needed for community immunity will not be reached across the Commonwealth before September of 2021

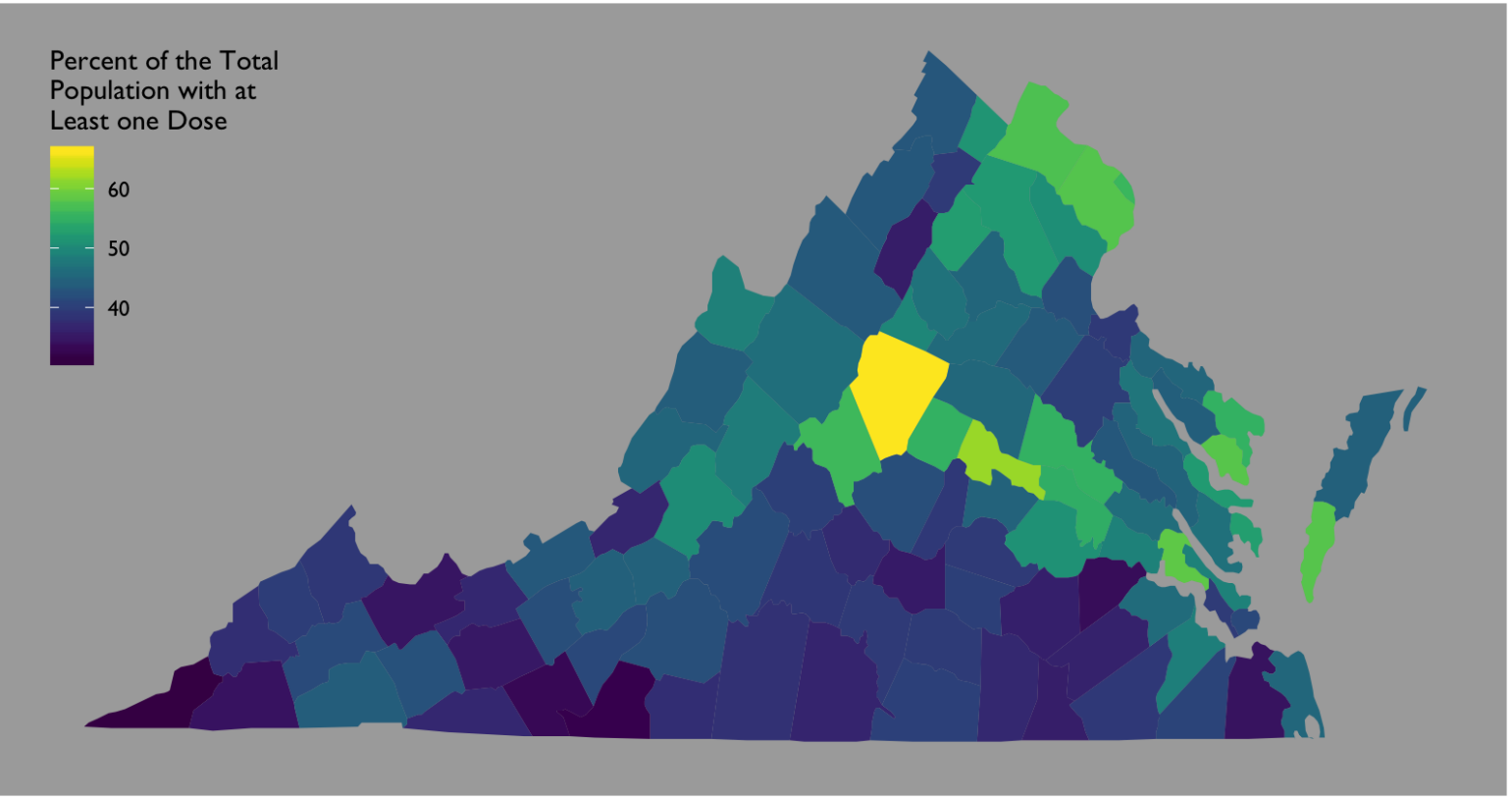
A Kaiser Family Foundation poll from May 28th indicated hesitancy has continue to decline

- There is a small but consistent portion of the population resistant to receiving a vaccine (roughly 20 percent)
- One third of the unvaccinated population say they will “wait and see” about the vaccine
- 44 percent of the ”wait and see” population report that they will get it when the FDA provides full approval
- One third of parents of children 12 to 17 years of age are not planning to vaccinate their children and 40 percent of parents of children under 12 years of age do not intend to vaccinate if the vaccine is approved

Vaccination rates are uneven across the Commonwealth

Share of the Total Population with at Least One Dose

Source: VDH



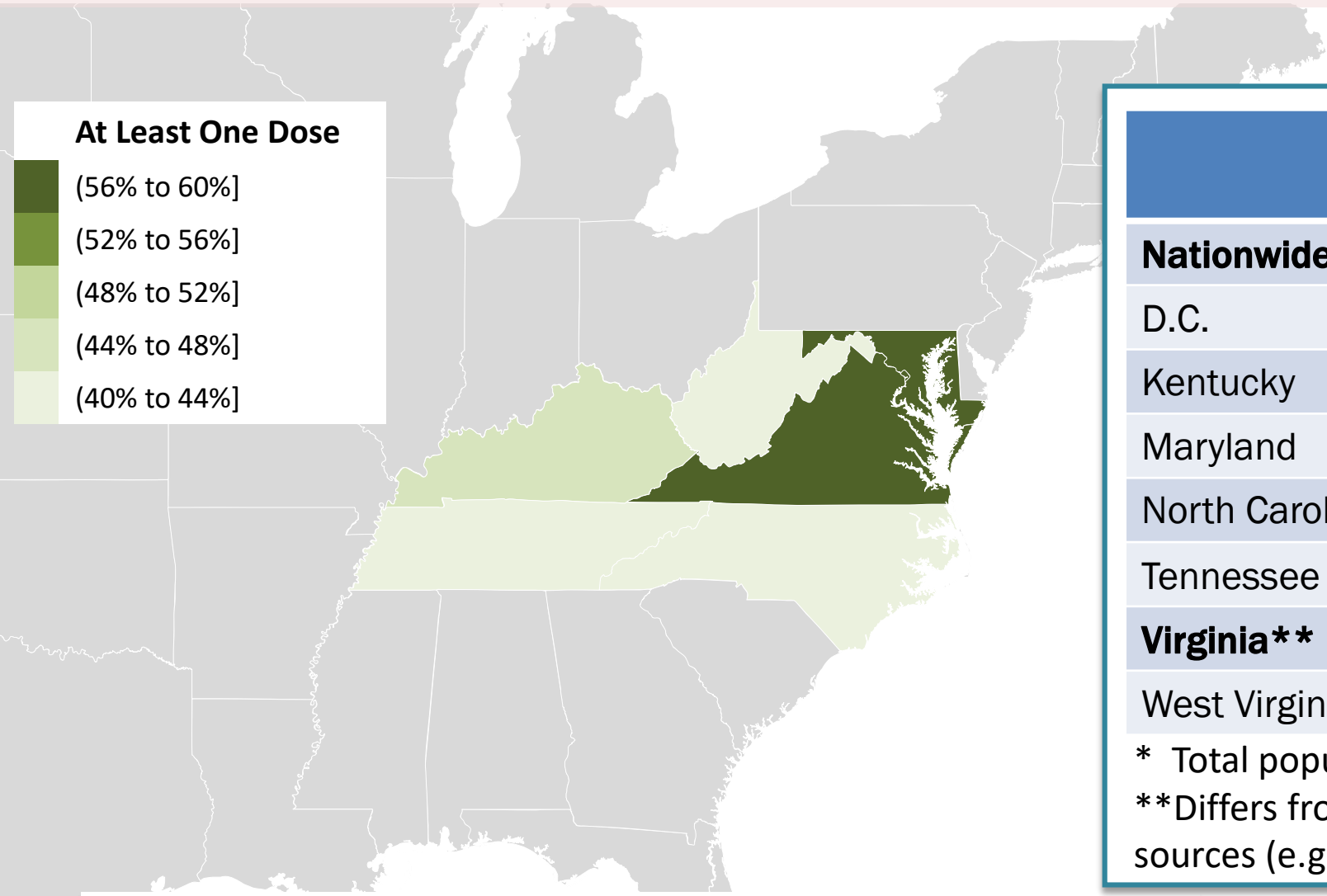
These data were updated June 9th

The population with at least one dose varies by county

- 32 counties (4.0 million Virginians) have more than 50 percent of their total population vaccinated (up from 31 counties and 3.9 million Virginians)
- 32 counties (1.1 million Virginians) have less than 40 percent of their total population vaccinated (down from 44 counties and 1.5 million Virginians)

Community immunity is estimated to require a vaccination rate around 70 to 80 percent for the total population

Vaccination rates among neighboring states vary substantially

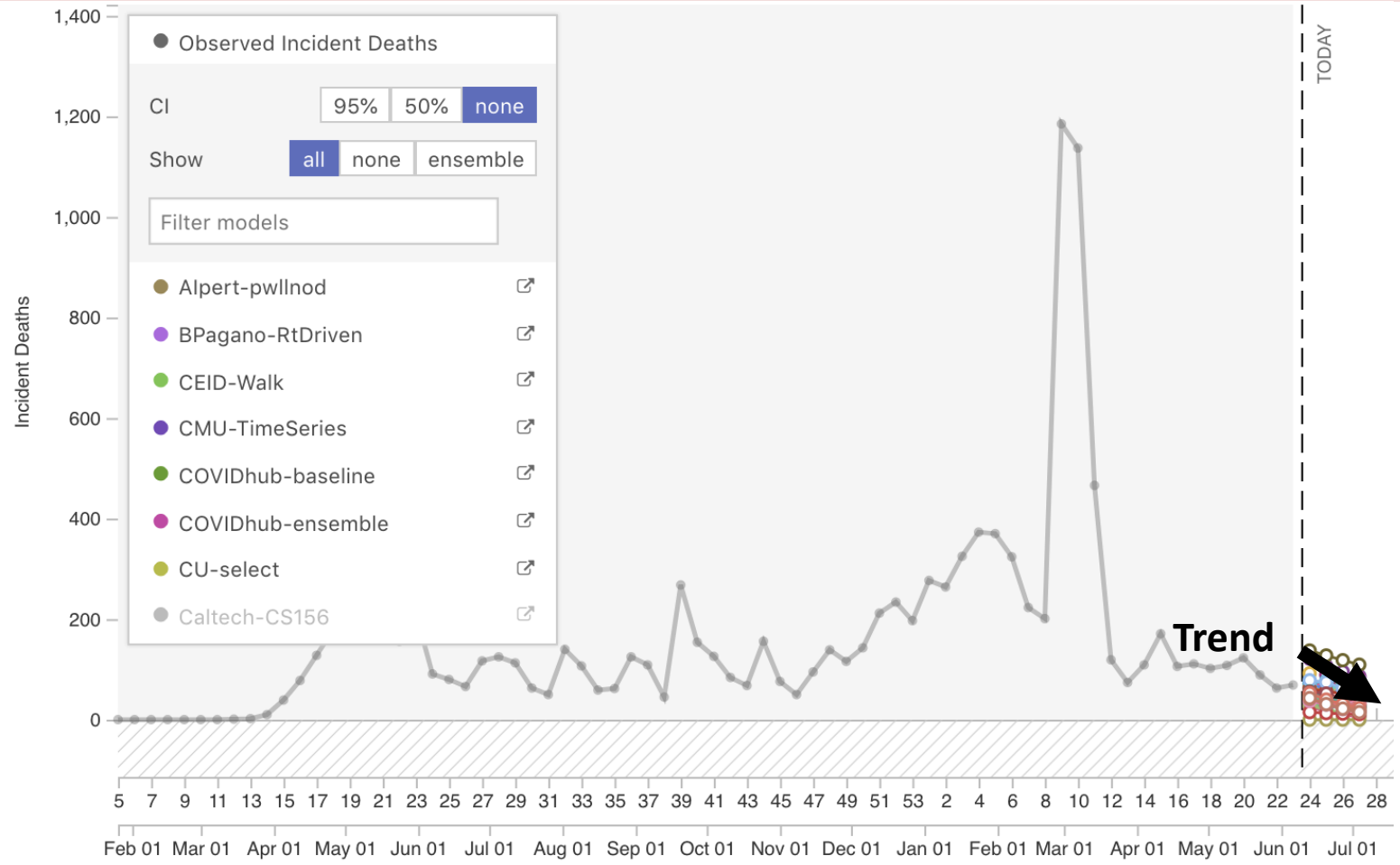


	Partially Vaccinated*	Fully Vaccinated*
Nationwide	**9.4%**	**42.3%**
D.C.	10.4%	47.6%
Kentucky	7.9%	39.4%
Maryland	8.6%	50.0%
North Carolina	7.0%	36.9%
Tennessee	7.3%	32.4%
Virginia**	**9.6%**	**46.9%**
West Virginia	6.7%	34.7%

* Total population, includes out-of-state vaccinations
**Differs from previous slide because all vaccination sources (e.g., federal) are included

Source: https://covid.cdc.gov/covid-data-tracker/#vaccinations
These data were updated June 9th

The model forecasts broadly agree on a sustained decline in cases



The model estimates forecast a continued decline in cases over the coming weeks

Many of the model predictions lag the data

- This means that they match the trends in retrospect but not as forecasts

Modeling will be less useful for forecasts with the current decline in cases

- Surveillance efforts will be key to the early identification of potential outbreaks
- Contact tracing efforts have proven effective in containing low levels of spread
- Modeling can support both surveillance and test-and-trace

Source: COVID-19 Forecast Hub, https://viz.covid19forecasthub.org/
Accessed June 9th

Discussion and Questions